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Santé et Bien-être social Canada

HEALTH PROTECTION AND FOOD LAWS

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HEALTH PROTECTION AND FOOD LAWS

This booklet is designed to explain the major aspects of Canadian food legislation under the jurisdiction of the Health Protection Branch to health educators, nutritionists, public health workers, dietitians and other professional groups whom we believe have a primary concern with the elimination of health hazards in foods.

This publication is part of our food education program. Through it, we hope to inform and to enlist the cooperation of all educators who are involved in consumer or health education. We also wish to establish a closer dialogue with all professional groups interested in food legislation as it relates to health.

For convenient use as a reference booklet, we have included a list of resource materials at the end of each section which we hope will be helpful to teachers and students.

Contents

FOOD LEGISLATION: A Health Safeguard

"Once a secondary matter, safeguarding health has now become the primary principle (of food legislation) because of the prodigious development of the food industry, of the evolution of social ideas and of the increased risks that modern techniques may present to man's health . . .

This factor therefore is now at the root of all modern food legislation . . ." E. J. Bigwood and A. Gerard.

The food and drugs act

One of the responsibilities of the Health Protection Branch, Health and Welfare Canada, is to protect the Canadian public from hazards to health in foods and to deal with matters of food quality. The legislation that makes it possible for the Branch to exercise this control is the *Food and Drugs Act and Regulations.*

The genesis of this legislation goes back to the early days of Confederation when intemperance constituted an important social and health problem. There was a great demand for alcohol at that time and no control over its production, consequently much of the alcohol sold was adulterated. Pressure was brought upon the government to take action to check such adulteration in the hope of preventing health hazards associated with the consumption of poor quality liquor. The *Inland Revenue Act* passed in 1875 thus became the earliest law enacted by the Canadian government to protect the public against the adulteration of food, drink and drugs. It was the first such law of national scope in the Americas. In 1877 the first annual report issued by the appointed analysts revealed that 51.5% of the food samples examined, mainly spices and milk, were adulterated.

A major Amendment to this Act was passed in 1884 and created the position of a Chief Analyst in Ottawa. The legislation was then known as the *Adulteration Act.* In 1910 the first standards for foods were promulgated after consultation with representatives from the food industry. Today, that pattern of cooperation continues to provide industry with an opportunity to comment on proposed regulations. In 1919 with the establishment of the Department of Health, the Food and Drugs Division was created and became responsible for the administration of the *Adulteration Act.* This Act was later repealed in 1920 and superseded by the *Food and Drugs Act* which has been amended several times since then. The present *Food and Drugs Act* was passed in 1953.

The articles of the Act dealing with foods are reproduced below and indicate clearly the scope of this legislation, and therefore the responsibility of Health and Welfare Canada, in preventing health hazards associated with foods. The Department of Consumer and Corporate Affairs is responsible for enforcing all aspects of the *Food and Drugs Act and Regulations* pertaining to economic fraud and labelling.

"3. (1) No person shall advertise any food, drug, cosmetic or device to the general public as a treatment, preventative or cure for any of the diseases, disorders or abnormal physical states mentioned in Schedule A.*

*See Appendix.

(2) No person shall sell any food, drug, cosmetic or device
  (a) that is represented by label, or
  (b) that he advertises to the general public as a treatment, preventative or cure for any of the diseases, disorders or abnormal physical states mentioned in Schedule A.*

4. No person shall sell an article of food that
  (a) has in or upon it any poisonous or harmful substance;
  (b) is unfit for human consumption;
  (c) consists in whole or in part of any filthy, putrid, disgusting, rotten, decomposed or diseased animal or vegetable substance;
  (d) is adulterated; or
  (e) was manufactured, prepared, preserved, packaged or stored under unsanitary conditions.

5. (1) No person shall label, package, treat, process, sell or advertise any food in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its character, value, quantity, composition, merit or safety.
(2) An article of food that is not labelled or packaged as required by the regulations, or is labelled or packaged contrary to the regulations, shall be deemed to be labelled or packaged contrary to subsection (1).

6. Where a standard has been prescribed for a food, no person shall label, package, sell or advertise any article in such a manner that it is likely to be mistaken for such food, unless the article complies with the prescribed standard.

7. No person shall manufacture, prepare, preserve, package or store for sale any food under unsanitary conditions."

The regulations

To keep up with new scientific or technological findings and to cope with the demands of our modern food industry, it is necessary to have a system of legislation which is flexible enough to allow for the introduction of new regulations without undue delay. Such a provision is contained in the *Food and Drugs Act* whereby authority has been entrusted to the Governor-in-Council for making new regulations. These regulations have the same force and effect as the Act itself. For instance, regulations may be enacted respecting the use of any substance as an ingredient in any food in order to prevent fraud or health hazards, or regarding the establishment of standards of composition or quality for any article of food. It is therefore possible to set regulations which will control, for example, the use of food additives, the fortification of foods or the microbiological quality of certain foods.

Regulations are constantly being reviewed or developed. Requests for changes in the regulations may arise from several sources including consumer groups, food industry and researchers. Experimental work may have been conducted either in Health Protection Branch laboratories, the universities or in industry by various scientists and food technologists to evaluate the toxicity of a food additive, to introduce a new processing technique, or to study the nutritional status of a population. These findings may reveal the need to allow for the use of a new food additive or for the enrichment of certain foods.

When a submission is made, the data is evaluated by members of the Food Directorate including scientists and food technologists as well as administrative representatives from the Branch. A number of factors must be considered, including health hazards and fraud, and consideration must be given to the problems this request could represent in terms of surveillance and control. Proposals for the modifications of the regulations are then communicated to the food industry by an Information Letter which briefly outlines the problem and the philosophy of the proposed regulation and invites comments from members of the trade or any other interested group. If the matter is controversial, it may be necessary to discuss the proposals in detail with representatives of the industry concerned and to seek the advice of experts in the field of interest. After a careful study of the recommendations received, the Health Protection Branch outlines the conditions to be regulated and the Legal Services Division of Health and Welfare Canada drafts the new regulation.

The Department of Justice reviews this draft and the regulation in its final form is referred to the Minister of Health and Welfare who presents it to the Governor-in-Council, that is, the Cabinet composed

*See Appendix.

of the Prime Minister and Ministers of the Crown. It is finally published in the Canada Gazette when it becomes law.

Although there is no provision for public hearings, the Minister of Health and Welfare answers to Parliament on matters pertaining to Food and Drug regulations sanctioned by the Governor-in-Council. Through this democratic process the Minister is responsible to the electorate. Furthermore, the validity of any regulation is subject to challenge in the courts.

The Branch has maintained excellent communications with the food industry and consumer groups throughout the years and welcomes as well representations made by various professional groups. Any proposal from such groups is carefully considered.

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Government 2: Industry and the M.P. . . ., Food in Canada 33, 59, July 1973.

Material available from Educational Services:
Health Protection Branch: Food Plant Inspection—Dispatch No. 21
Inspection for Health Protection—folder

The Canadian Food and Drugs Act and Regulations may be purchased from:
Supply and Services
Mail Order Section
270 Albert St., Ottawa
K1A 0S9

BASIC FOOD REGULATIONS: Labelling, Advertising, Food Standards

A. Labelling

The Department of Consumer and Corporate Affairs is responsible for the labelling, packaging and advertising of foods under the authority of the *Consumer Packaging and Labelling Act and Regulations* and the *Food and Drugs Act and Regulations*.

In 1973 the Department of Consumer and Corporate Affairs issued proposed Consumer Packaging and Labelling Regulations as well as proposed changes to the Food and Drug Regulations which would modify significantly the requirements for the labelling of foods. These new regulations were promulgated in March 1974, and manufacturers were given up to the 1st of March 1976 to comply with the new requirements. The main features of these regulations are outlined here. For further details one should contact the Department of Consumer and Corporate Affairs.

What should appear on a food label:

- the common name of the food
- the net quantity of the food
- the name and address of the person responsible for the product
- the list of ingredients
- the durable life date and storage instructions as required

All the above mandatory information must appear in both the French and English languages, with the exception of the name and address of the manufacturer which may appear in either French or English.

The net quantity

In prepackaged products, with certain specified exceptions, the net quantity must be by volume when the product is liquid or viscous and by weight for solid products.

Canadian and imported products must show the net quantity of the food in terms of metric units, except prepackaged products packaged from bulk on the retail premises and prepackaged catch weight products sold by a retailer which may be labelled only in Canadian units.

Food products exempted from a net quantity declaration:

- prepackaged individual servings prepared by a commissary and sold from vending machines or mobile canteens
- prepackaged one-bite confections sold individually
- prepackaged individual portions of food served by restaurants with meals or snacks
- prepackaged fresh fruits or vegetables packaged in a wrapper or confining band of less than ½ inch in width
- prepackaged raspberries or strawberries that are packaged in the field in containers having a capacity of 1.14 litres or less

Name and address of the person held responsible for the product

This is defined as the identity and principal place of business of the person by or for whom the food was manufactured or produced for resale. It can be the name of the actual manufacturer of a product or the name of a firm or store that had a product manufactured under its own brand name.

The list of ingredients

(1) Food products must carry a list of ingredients in descending order of proportion or as a percentage of the prepackaged product.

A list of ingredients is *not* required on:

- prepackaged products packaged from bulk on the retail premises

- prepackaged individual portions of food served by restaurants with meals and snacks
- individual portions of food prepared by a commissary and sold from a vending machine or mobile canteen
- prepackaged meat or poultry products that are barbecued, roasted or broiled on the retail premises
- standardized alcoholic beverages
- vinegars

The following ingredients may be listed in any order immediately after the other ingredients:

- spices, seasonings and herbs, except salt
- natural and artificial flavours
- flavour enhancers
- food additives
- vitamins
- salts or derivatives of vitamins
- mineral nutrients
- salts of mineral nutrients

(2) Ingredients shall be listed under their common name. However, certain ingredients may be listed under a class name. The following table includes some examples:

INGREDIENTS THAT MAY BE LISTED UNDER A CLASS NAME

INGREDIENT	CLASS NAME
Vegetable fats or oils, except cocoa-butter, coconut oil, palm oil or palm kernel oil	"vegetable oil" or "vegetable fat"
Marine fats or oils	"marine oil"
Permitted food colours	"colour"
Natural flavours	"flavour"
Artificial flavours	"artificial flavour" "imitation flavour" or "simulated flavour"
Spices, seasonings or herbs, except salt	"spices" "seasonings" or "herbs"
Any combination of all types of milk: whole skimmed or partly skimmed, cream, butter and butter oil	"milk solids" or "dairy ingredients"
Any combination of disodium phosphate, monosodium phosphate, sodium hexametaphosphate, sodium tripolyphosphate, tetra sodium pyrophosphate and sodium acid pyrophosphate	"sodium phosphate" or "sodium phosphates"

Meat, poultry, fish or their by-products must be identified under their individual names. In the case of plant protein products the name of the source of the protein must be given.

For protein isolates either the name of the source of the protein or the common name of the protein isolate must be given.

(3) If an ingredient is optional or can be substituted for another one in the preparation of a product, the label may indicate all the ingredients that are likely to be used in this product during one year. However, there must be a clear indication that these specific ingredients may not all be present in a given package of the food.

(4) Ingredients containing more than one component require complete component listing unless the specific ingredient is exempted under the *Food and Drug Regulations*.

Durable life date

For foods, which have a durable life of not more than 90 days, manufacturers are required to indicate a durable life date on the label. Moreover, if these products require special storage conditions, instruction for proper storage must be given on the label. The following foods are exempted from a durable life date:

- prepackaged fresh fruits and vegetables
- prepackaged individual portions of food served by restaurants with meals and snacks

- individual portions of food prepared by a commissary and sold from a vending machine or mobile canteen
- prepackaged fresh or previously frozen meat, poultry or fish or their by-products
- prepackaged donuts

"Durable life" is defined as the period of time, beginning on the day on which the prepackaged product is packaged for retail sale, during which a product stored under proper conditions will retain, without appreciable deterioration, its normal wholesomeness, palatability or nutritional value.

The date on which a product may no longer meet all these conditions is referred to as the durable life date and is indicated on the label as: "Best before *a given date*". Meat is an exception to this rule. The date on a meat label indicates the date the item was packaged and a sign posted near the point of sale must show the "durable life" of the item. Yeast must display a "use by" date.

It should be noted that products may still be safe to eat after the durable life date, but the consumer can expect a certain deterioration in quality.

However, it is important to note that the date appearing on infant formula is an "expiration date" after which the manufacturer does not recommend that the product be consumed.

B. Advertising

All advertisements making claims for foods aired on television and radio and originating in Canada must be cleared through the Canadian Radio and Television Commission and are submitted to the Department of Consumer and Corporate Affairs for approval.

Officers of this department regularly check food advertising appearing in newspapers and magazines published in Canada to ensure that it does not carry false or misleading information.

The label or any other written material accompanying a product to be sold is considered as advertising and subject to control. However, false or misleading information published in books or magazines cannot be curtailed if it is not directly associated with the promotion of a product. Canada has no authority over broadcast advertising received on television or radio directly from the U.S.A.

General nutritional claims

The following nutritional claims are considered misleading:

- Claims pertaining to or based on a nutrient present in a food when an R.D.I.* of that food contains an insignificant amount of the selected nutrient, e.g. milk as a good source of iron.
- The use of dietary standards or results of dietary surveys as promotional material.
- The selection of favourable references on controversial issues, with no indication that equally competent authorities are not in agreement.

Food and disease

No claims relating to the treatment, cure or prevention of the diseases or disorders listed in Schedule A** are tolerated on labels or in advertising.

Food vs. energy

The lay concept of energy, that is, having pep, vitality, vigor, strength or endurance, cannot be stressed in food advertisements. Whenever a reference is made to "food energy" it should be in the nutritional sense, i.e., Calories or kilojoules.

"Balance"

This concept relates to the diet as a whole or to the habitual food pattern. Although a single food may contribute to the establishment of this balance it is not in itself responsible for the nutritional balance and thus should not be represented as such.

Protein claims

The term PROTEIN may be used:

- in the list of ingredients when protein is used in the formulation: e.g., hydrolyzed vegetable protein.
- to state the amount of protein, fat and carbohydrate in a food.

*Reasonable daily intake (See page 17.)

**See Appendix.

"Excellent" or "Good" source of protein

A food may be advertised as an "excellent" or a "good" dietary source of protein if it meets the criteria defined by the *Food and Drug Regulations* for these claims.

The term "Excellent (dietary) source of protein" may be used if:

- the protein rating is not less than 40, or 20 for a food prepared especially for infants.

The term "A good (dietary) source of protein" may be used if:

- the protein rating of that food is not less than 20.

Protein rating

Protein rating is a means devised by the Health Protection Branch, to estimate, for legislative purposes, the nutritional value of protein sources as part of the Canadian diet.

It is used to judge the validity of claims for labelling and advertising purposes and to define the nutritional quality of proteins in substitute foods. Protein rating is not intended to be used in evaluation of diets.

Two factors are considered in determining the protein rating of a food:

- the quality of the protein as determined by the protein efficiency ratio (P.E.R.)***
- the quantity of protein provided by a Reasonable Daily Intake (R.D.I.) of that food.

These factors are summarized in the following formula:

P.E.R. $\times$ grams of protein in R.D.I. = Protein Rating.

For instance, the P.E.R. of egg protein is 3.8 and a Reasonable Daily Intake of eggs (2 eggs or 100 g) will provide 12.8 g of protein. Therefore, the protein rating for eggs is:

$$3.8 \times 12.8 = 48.6$$

Eggs may thus be claimed to be an excellent source of protein because their rating is above 40.

***P.E.R. Protein Efficiency Ratio, method of protein evaluation defined as the weight gain in grams of a growing rat divided by the grams of protein consumed in a standardized 4 week assay.

A food with a rating below 20 does not contribute significant amounts of protein to the diet, and it is considered misleading to attach any special significance to its protein content or to use it in any way as the basis of advertising claims.

Claims regarding the functions of proteins

The following claims may be made only if the food is described on the label as an "excellent" or "good" dietary source of protein:

- proteins help children grow.
- proteins help provide food energy.
- proteins are needed for the renewal and maintenance of the body tissues.

PROTEIN RATING OF CERTAIN FOODS

Food	R.D.I. grams	Protein in R.D.I. grams	P.E.R.	Protein Rating
Cabbage	100	1.4	0.9	1.3
Whole wheat	30	3.0	1.5	4.5
Rolled oats	30	3.8	2.1	8.0
Rolled oats plus milk (1:4)	150	8.0	3.2	25.6
"Protein" cereal	30	6.0	0.03	0.2
"Protein" cereal plus milk (1:4)	150	10.0	2.0	20.0
White bread	150	12.6	1.0	12.6
Whole wheat bread	150	15.5	1.1	17.1
"Protein" bread	150	17.1	1.3	23.0
Soybeans (dry)	30	10.5	2.3	24.1
Cheese	60	18.6	2.3	43.2
Whole egg	100	12.8	3.8	48.6
Beef	100	21.0	3.2	67.2
Whole milk	900	32.0	2.8	89.5

TABLE 1 PERMITTED VITAMIN CLAIMS

	Min. in R.D.I. for "Excellent Source"	Min. in R.D.I. for "Good Source"	Min. in R.D.I. for Specific Claims	Specific Claims
Vitamin D (IU)	300		300	Factor in the normal development and maintenance of bones and teeth, especially in infancy and childhood
				Factor in the maintenance of good health
Vitamin A (IU)	1200	600	1200	Factor in the maintenance of good health
Thiamin (mg)	0.45	0.25	0.45	Factor in the maintenance of good health
Riboflavin (mg)	0.75	0.4	0.75	Factor in the maintenance of good health
Niacin (mg)	4.5	2.5	4.5	Factor in the maintenance of good health
Vitamin C (mg)	15.0	7.5	15.0	Factor in the normal development and maintenance of bones, cartilage, teeth and gums
				Factor in the maintenance of good health

TABLE 2 PERMITTED MINERAL CLAIMS

	Min. in R.D.I. for "Excellent Source"	Min. in R.D.I. for "Good Source"	Min. in R.D.I. for Specific Claims	Specific Claims
Calcium (mg)	300	150	300	Factor in the normal development and maintenance of bones and teeth, especially in infancy and childhood
				Factor in the maintenance of good health
Phosphorus (mg)	300	150	300	Factor in the normal development and maintenance of bones and teeth, especially in infancy and childhood
				Factor in the maintenance of good health
Iron (mg)	4	2	4	Factor in the prevention of iron deficiency
				Factor in the maintenance of good health

Vitamin and mineral claims

The basic principle of the regulations controlling claims based on the vitamin and mineral content of food is to prevent exploitation.

Guaranteed satisfaction

No assurance regarding results to be obtained from the addition of vitamin or minerals to the diet may be given in the advertisement of a food, and no testimonial may be quoted or reproduced for this purpose.

"Excellent" or "Good" source of vitamin or mineral

The use of these terms is restricted to foods with a naturally occurring vitamin or mineral content and to simulated meat, poultry or egg. In such a case the claim "excellent" or "good" dietary source is permitted if the R.D.I. of that food provides the amount of vitamin or mineral specified in Table 1 or Table 2.

Specific claims for foods which are excellent sources of a vitamin or mineral

If the R.D.I.* of a food provides a certain minimum amount of vitamin or mineral, specific claims may be made regarding that vitamin or mineral as stated in Table 1 or 2.

Claims for foods containing added vitamins or minerals

In the labelling of an enriched food the statement must indicate the nature and the quantity of the nutrient added, but no other claims may be made.

Claims for foods intended for children

Where a food to which no vitamin or mineral has been added is intended solely for children under two years of age, a label statement can be made only if a reasonable daily intake of the food will provide the following minimum amount of the specified nutrient:

vitamin A	600 IU	pyridoxine	0.25 mg
thiamin	0.25 mg	calcium	150 mg
riboflavin	0.4 mg	phosphorus	150 mg
niacin	2.5 mg	iron	2 mg
ascorbic acid	7.5 mg	iodine	0.05 mg

*See page 17.

Claims regarding the "saturation" of fats and oils

What claim is permitted?

The only claim permitted in the advertisement and labelling of fats and oils is a statement of the percentage of polyunsaturated and saturated fatty acids in the total fat. Such a statement can be made provided the saturated fatty acids do not exceed 25%, and the polyunsaturates comprise at least 40% of the fat if it is in an oil, or at least 25% of the fat in shortening, margarines or similar products. In this instance the polyunsaturated fatty acids include only the cis forms, primarily linoleic acid.

PERCENTAGE OF FATTY ACIDS IN TOTAL FAT REQUIRED TO MAKE A CLAIM REGARDING THE SATURATION OF A PRODUCT.

	Oil	Margarine
Cis-methylene interrupted polyunsaturated fatty acids	At least 40%	At least 25%
Saturated fatty acids	No more than 25%	No more than 25%

How should the claim be made?

Statements of the percentages of polyunsaturated and saturated fatty acids should:

- be grouped together,
- be given equal prominence, and
- clearly refer to total fat

e.g. 27% polyunsaturated fatty acids
18% saturated fatty acids

What about cholesterol?

Any reference to cholesterol is prohibited except on the labels of foods for fat-modified diets.

When buying an oil

Two guidelines can be used in selecting an oil high in polyunsaturated fats: look for the kind of oil recommended, or for a declaration pertaining to the saturation of the product.

The label of salad or table oil must indicate the kind of oil contained in the product and may carry a declaration as to percentage of

saturated and polyunsaturated fatty acids present if the product meets the specifications stated above.

Choosing a margarine

To select a margarine containing a significant amount of polyunsaturated fats, look for the declaration which indicates the percentage of polyunsaturated and saturated fatty acids.

Artificial flavours

When an artificial flavour is used in a product and the label illustrates the natural product this flavouring imitates, it should be clearly indicated near the vignette or close to the common name of the product that the flavouring is an imitation, artificial or simulated.

C. Food standards

For approximately 300 food items on the market, the *Food and Drug Regulations* define a standard of identity or composition which ensures that all products sold under a given name meet a certain quality. Standards protect the consumers and the food processors from unethical manufacturers who might attempt to sell a product of inferior quality under this name.

Standard of identity

This is a mere definition of the product, e.g.,
B.02.054 [S] "Cognac Brandy or Cognac shall be brandy manufactured in the Cognac district of France in accordance with the laws of the French Republic for consumption in that country".

Standard of composition

This type of standard may list mandatory (a) or permitted ingredients (b) or indicate analytical requirements (c) which must be met, e.g.,

B.07.040 [S] "Mayonnaise, Mayonnaise Dressing or Mayonnaise Salad Dressing
(a) shall be a combination of
  (i) vegetable oil
  (ii) whole egg or egg yolk, in liquid, frozen or dried form, and
  (iii) vinegar or lemon juice:
(b) may contain
  (i) water
  (ii) salt
  (iii) a sweetening agent
  (iv) spice or other seasoning except turmeric or saffron,
  (v) citric, tartaric or lactic acid, and
  (vi) a sequestering agent; and
(c) shall contain not less than 65 per cent vegetable oil."

Nutritional requirements

Substitutes for staple foods are becoming increasingly popular and some of these products might constitute a health hazard if they did not provide adequate nutritional value.

Although there are no specific regulations controlling the introduction of substitute foods on the market and each case is treated separately, the Health Protection Branch has guidelines for the addition of nutrients to such foods. These are described under "Enrichment of Foods".

It is customary for the food industry to submit to the Health Protection Branch proposals for the marketing of new foods in Canada. As HPB officers monitor the trends on the U.S.A. market, very often they can forsee new developments.

Upon receipt of data pertaining to a new substitute food, the information is reviewed to determine if sale of the product will contribute any short or long range health problems to Canadian consumers. When a substitute food is designed to replace a basic food in the Canadian diet, the Health Protection Branch requires a nutritional value similar to that of the natural food it intends to replace. A regulation will then be established to specify levels of a nutrient to be present in the food as well as protein quality requirements if necessary.

The name of a substitute food is also subject to regulation as clear identification of the product is important to avoid confusion with the natural food.

Ready breakfasts, simulated whole eggs, infant formula and meat

and poultry substitutes are substitute foods for which nutritional requirements have been set as described below.

Breakfast substitute

B.01.053 "No person shall sell a product represented as ready breakfast or instant breakfast or by any similar designation unless each portion or serving of the product contains

a. not less than 4.0 mg iron;
b. vitamin A, thiamin, riboflavin, niacin, or niacinamide and vitamin C;
c. a good dietary source of protein; and
d. where consumed as directed, not less than 300 calories"

Simulated whole egg

B.22.032 "No person shall sell any product simulating whole egg unless the product

a. is made from liquid, dried or frozen egg albumen or mixtures thereof;
b. has a protein rating of not less than 40 as determined by the official method;
c. notwithstanding sections D.01.009 and D.02.009, contains, per 100 grams on a ready to use basis,
   (i) not less than
      (A) 50 milligrams calcium
      (B) 2.3 milligrams iron
      (C) 1.5 milligrams zinc
      (D) 130 milligrams potassium
      (E) 1000 International Units Vitamin A
      (F) 0.10 milligrams thiamin
      (G) 0.30 milligrams riboflavin
      (H) 3.60 milligrams niacin
      (I) 1.60 milligrams pantothenic acid
      (J) 0.20 milligram vitamin B_6
      (K) 0.50 microgram vitamin B_{12}
      (L) 0.02 milligram folic acid
      (M) 2.0 International Units Alpha-tocopherol, and
   (ii) not more than 3 milligrams cholesterol
d. has a calcium to phosphorus ratio of not less than one part calcium to four parts phosphorus;
e. contains in the total fat of any fat or oil used not less than 40 per cent cis-cis methylene interrupted polyunsaturated fatty acids and not more than 20 per cent saturated fatty acids."

Infant Formula

COMPOSITION PER 100 AVAILABLE KILOCALORIES

	Min.	Max.		Min.	Max.
Fat	3.3 g	6.0 g	Calcium	50 mg	
Linoleic acid	500 mg		Chloride	55 mg	150 mg
C_{22} monoenoic fatty acids	1.8 g	1 kcal	Copper	60 mcg	
Protein*	1.8 g	4.0 g	Iodine	5 mcg	
Biotin	2 mcg		Iron	0.15 mg	
Folic acid	4 mcg		Magnesium	6 mg	
Niacin	250 mcg		Manganese	5 mcg	
D-pantothenic acid	300 mcg		Phosphorus	25 mg	
Riboflavin	60 mcg		Potassium	80 mg	200 mg
Thiamin	40 mcg		Sodium	20 mg	60 mg
Alpha-tocopherol	0.6 IU		Zinc	0.5 mg	
Vitamin A	250 IU	500 IU	Choline	12 mg	
Vitamin B_6	35 mcg				
Vitamin B_{12}	0.15 mcg				
Vitamin C	8 mg				
Vitamin D	40 IU	80 IU			
Vitamin K[1]	8 mcg				

*Protein Quality

Not less than 1.8 grams of protein of nutritional quality equivalent to casein; or such an amount and quality of protein that, when the quality of the protein is expressed as a fraction of the quality of casein

a) the fraction will not be less than 85/100, and
b) the product obtained by multiplying the fraction by the gram weight of the protein will not be less than 1.8

Ratios Specified

- Alpha-tocopherol to linoleic acid: not less than 0.6 International Units to one gram
- Calcium to phosphorus: not less than 1.2 grams to one gram and not more than 2.0 grams to one gram
- Vitamin B_6 to protein: not less than 15 micrograms to one gram

PROTEIN AND FAT REQUIREMENTS FOR MEAT SUBSTITUTES AND EXTENDERS

	Minimum Protein		Maximum Fat
	%	Rating	%
*Extender for poultry or meat**	16	40	
Meat			
meat + extender	16		25
meat + filler + extender	13		25
simulated meat*	16	40	25
Ground meat			
ground meat + extender (lean)	16		17
ground meat + extender (medium)	16		23
ground meat + extender (regular)	16		30
simulated ground meat (lean)*	16	40	17
simulated ground meat (medium)*	16	40	23
simulated ground meat (regular)*	16	40	30
Sausages			
fresh meat + extender	9		40
simulated fresh*	9	23	40
cooked + extender	11		25
simulated cooked*	11	28	25
Potted meat and meat paste			
meat + extender	9		30
simulated product*	9	23	30
Poultry			
meat + extender	16		15
simulated poultry*	16	40	15
Bacon			
simulated side bacon*	25	20	

* Essential amino acids can be added to these products in amounts only sufficient to improve the nutritional quality of the protein.

VITAMIN AND MINERAL REQUIREMENTS FOR MEAT SUBSTITUTES AND EXTENDERS

Nutrient	*Minimum amount per gram of protein*
Copper	4.4 μg
Folic acid	0.45 μg
Iron	0.25 mg
Magnesium	1.1 mg
Niacin	0.34 mg
Pantothenic Acid	0.04 mg
Potassium	20 mg
Pyridoxine	0.02 mg
Riboflavin	0.01 mg
Thiamin	0.02 mg
Vitamin B_{12}	0.08 μg
Zinc	0.20 mg

Microbiological Standards

At present only a few regulations prescribe microbiological requirements for specific foods as indicated below. However, there is a definite trend towards more microbiological standards and several are currently being developed.

FOODS FOR WHICH THERE ARE MICROBIOLOGICAL REQUIREMENTS

Food	Requirement
Cocoa and chocolate	free from salmonella
Milk powder	free from salmonella
Flavoured milks	not more than 50,000 bacteria per c.c.
Milk for manufacture	not more than 2,000,000 bacteria per mL or 2 mg of sediment per 16 fluid ounces
Cheese made from a pasteurized source	not more than 500 coliform bacteria, 100 escherichia coli, 100 coagulase positive staphyloccus aureus per gram
Cheese made from an unpasteurized source	not more than 5,000 coliform bacteria, 500 escherichia coli, 1,000 coagulase positive staphylococcus aureus per gram
Cottage cheese	not more than 10 coliform bacteria per gram
Ice cream and ice milk	not more than 100,000 bacteria per gram, 10 coliforms per gram
Edible bone meal	not more than 1,000 bacteria per gram, no escherichia coli
Gelatin	free from salmonella, not more than 5,000 bacteria, 10 coliforms per gram
Fish protein	not more than 10,000 bacteria per gram, no escherichia coli
Frog legs	free from salmonella
Egg product or liquid eggs	free from salmonella

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THE REASONABLE DAILY INTAKE

The Reasonable Daily Intake (R.D.I.) is an estimate of the probable daily consumption of a food when it is included in the diet of Canadians. This term of reference was first established to evaluate, for legislative purposes, the nutritional contribution of specific foods to the Canadian diet. Later when the vitamin and mineral regulations were promulgated, minimum and maximum values for the enrichment of foods were also given in terms of the R.D.I.

For instance, a food (e.g. butter) may be described as a good or excellent source of a vitamin depending on the amount of this vitamin that is present in the R.D.I. It is therefore logical to use the same standard to determine the amount of a certain vitamin which can be added to a substitute for this food (e.g. margarine) to ensure nutritional comparability.

The R.D.I. for most foods is considered to be one average serving. However, in the case of foods such as milk, bread, or butter, where several servings may be consumed daily, an attempt has been made to estimate what can be regarded as a reasonable intake considering the food habits of Canadians.

In the case of foods for which there is a wide range of intakes, the R.D.I. is usually higher than the average daily intake of the whole population. In such cases the R.D.I. is an attempt to evaluate what is a reasonable intake among the population group where this food is most popular. For instance, the average daily intake of milk for children, teenagers and adults will vary greatly. Therefore, in an attempt to approximate reality, the R.D.I. for milk will take into consideration the reasonable daily intake of milk among milk drinkers.

It is important to distinguish the R.D.I. concept from that of the recommended daily intake of the Canadian Dietary Standard or Canada's Food Guide. The R.D.I. is oriented more in terms of what one may expect an individual to eat daily rather than the amount considered desirable by nutrition experts. Studies of eating patterns of certain groups of the Canadian population have shown that food habits may be quite different from Canada's Food Guide and still provide all necessary nutrients daily. Our food enrichment policy has therefore been established in relation to an approximation of the amount of food consumed daily that is looked upon as being "reasonable".

One should keep in mind the objectives of the regulations concerning nutritional claims* and food enrichment** when looking at the R.D.I. Although the R.D.I. at the present is a non-scientific measure, in most instances it has proven satisfactory for legislative purposes.

*See page 8.
**See page 19.

TABLE 3 REASONABLE DAILY INTAKE FOR VARIOUS FOODS

Name and Description	R.D.I. Canadian Measure	R.D.I. Metric Measure
Alimentary Pastes, dry	3.0 oz	85 g
Bacon (side) simulated meat product (cooked)	1.0 oz	28 g
Beverage Bases and Mixes, Flavoured for Addition to Milk (ready to serve)	16.0 fl oz	454 mL
Bread, 5 slices	5.3 oz	150 g
Butter	2.0 oz	57 g
Buttermilk	30.0 fl oz	852 mL
Cereals, Breakfast or Infant	1.0 oz	28 g
Cereals, Puffed	0.5 oz	14 g
Cheese (other than Cottage Cheese)	2.0 oz	57 g
Cheese, Cottage	3.5 oz	100 g
Condensed Milk	15.0 fl oz	426 mL
Cream, whipping	2.0 oz	57 g
Eggs, yolk-replaced egg	3.5 oz	100 g
Evaporated Milk, Skim Milk or Evaporated Partly Skimmed Milk	15.0 fl oz	426 mL
Fish or Shellfish	3.5 oz	100 g
Fruits, dried	2.0 oz	57 g
Fruits (other than named fruits)	3.5 oz	100 g
Banana	5.0 oz	150 g
Lemon	1.8 oz	50 g
Lime	1.8 oz	50 g
Watermelon	7.0 oz	200 g
Fruit Drinks and Nectars (ready to serve)	4.0 fl oz	114 mL
Fruit Drink Bases, Mixes and Concentrates (ready to serve)	4.0 fl oz	114 mL
Fruit Juices (other than lemon juice and lime juice)	4.0 fl oz	114 mL
Lemon Juice	1.0 fl oz	28 mL
Lime Juice	1.0 fl oz	28 mL
Ice Cream, Ice Milk	3.5 oz	100 g
Infant Formulas, Prepared (ready to serve)	as directed by label	
Instant Breakfast, Ready Breakfast (ready to serve)	as directed by label	
Margarine	2.0 oz	57 g
Meat and Extended Meat Products	3.5 oz	100 g
Meat and Poultry Product Extenders	3.5 oz	100 g
Milk: whole, skim, partly skimmed or with added milk solids	30.0 fl oz	852 mL
Milk Powders (reconstituted and ready to serve): whole, skim, partly skimmed	30.0 fl oz	852 mL
Molasses	1.5 oz	43 g
(Naming the flavour) Milk: whole, skim, partly skimmed or with added milk solids	30.0 fl oz	852 mL
Nuts	1.0 oz	28 g
Peanut Butter	1.0 oz	28 g
Poultry and Extended Poultry Products	3.5 oz	100 g
Simulated Meat and Poultry Products	3.5 oz	100 g
Soup (ready to serve)	7.0 fl oz	200 mL
Sterilized Milk	30.0 fl oz	852 mL
Vegetables (other than named vegetables)	3.5 oz	100 g
Beans, baked	8.5 oz	250 g
Potatoes, cooked	7.0 oz	200 g
Vegetable Juices, Drinks, Drink Concentrates, Mixes and Bases (ready to serve)	4.0 oz	114 mL
Yeast	0.5 fl oz	14 g
Yogurt, plain	5.0 fl oz	150 g

ENRICHMENT OF FOODS

Addition of certain nutrients to foods has been controlled in Canada for more than a quarter of a century. Already in the late forties regulations were established to define the amounts of vitamins and minerals that could be added to foods; and certain food standards, such as those for bread and flour, were modified to allow for the enrichment of these products. However, it was not until 1964 that the regulations indicated which unstandardized foods could be so enriched.

In Newfoundland a nutrition survey conducted in 1944 revealed evidence of widespread vitamin deficiencies on the island and the government quickly enacted laws making mandatory the enrichment of white flour with B vitamins. Because of evidence that calcium and iron were also in short supply in the Newfoundland diet, these two minerals were added to flour. A second survey, conducted in 1948, showed a general improvement in the nutritional status of Newfoundlanders. When the island joined Canada in 1949, it was decided to amend the *Food and Drug Regulations* to permit voluntary enrichment of white flour and bread with thiamin, riboflavin, niacin and iron.

This action outlines the two characteristic features of the early enrichment policy followed by Canada: addition of nutrients to foods was permitted to correct or alleviate a real or potential nutrient deficit and the addition was optional. However, with time, criteria for the enrichment of foods have been revised to correspond more closely to the needs of a technological society.

Policy on the addition of nutrients to food

Today the Food and Drug Regulations permit or make mandatory addition of a nutrient to a food when there is a nutritional justification for it:

- To correct a demonstrated nutrient deficiency in some segment of the population, providing addition of the nutrient is the most effective means to alleviate this problem and providing the food is a suitable vehicle for the nutrient and reaches the population that needs it. This is the case of iodine added to table salt and vitamin D added to milk. The amount added should only be sufficient to correct the deficiency.
- To replace those nutrients removed from a staple food such as flour in the course of good manufacturing practice.
- To ensure a reasonable nutritional quality in products sold as meal replacements or as substitute for traditional foods. Meal replacements, such as instant breakfasts, shall contain essential nutrients in amounts related to the purpose of the meal. Substitutes for a traditional food should be nutritionally comparable to the products they replace (e.g. egg substitutes).

Besides correcting existing deficiencies, this policy ensures that the quality of the food supply does not deteriorate. Enrichment of foods is a preventive health measure and our knowledge of the nutritional status and the eating habits of Canadians have always influenced its

orientation. For instance, it is recognized that the energy requirements of our sedentary population have greatly diminished. The nutritional quality of every calorie ingested has therefore become more critical while on the other hand the consumption of empty calories is on the rise.

Regulatory measures designed to counteract this trend have been proposed and are being studied by the Health Protection Branch. They would make enrichment more extensive and often mandatory and would improve the nutritional value of snack foods.

Table 5 presents the list of foods that may be enriched, the nutrients that can be added to these products and whether or not this enrichment is mandatory.

The amount of nutrient added

To make this enrichment meaningful and to prevent an excess, the regulations state the amount of a nutrient that can be added to a food. This amount is always indicated on the label and is currently being set according to two approaches.

1. The exact amount of a nutrient to be added to a given quantity of a specific food is stated in the regulation concerning this food. This is usually the case for products sold as substitutes for traditional foods such as simulated meats or simulated whole eggs, (see pages 13 and 14), and for processed products where the objective is to restore the nutritional value to that of the unprocessed food.
2. Otherwise, a general rule has been set, stating the minimum and/or maximum amounts of certain nutrients which may be added to the R.D.I. of foods selected for enrichment. The lower limits represent approximately 40-75% of the Recommended Daily Intake. Table 4 specifies the limits of these ranges.

Points to stress in nutrition education

- Enrichment is a preventive public health measure.
- Enrichment allows for a greater variety of nutritionally sound foods and allows consumers to meet their different needs.
- Enriched foods represent good choices without necessarily being equivalent to natural foods.
- Vitamins present in enriched foods have the same biological value as vitamins naturally occurring in foods.
- How to recognize enriched foods and how to select them wisely.

U.S.A. legislation on enrichment

In many cases the American legislation pertaining to vitamin and mineral enrichment of certain foods differs from the Canadian regulations and proper adjustment should be made when using American food tables to calculate the nutritive value of a product.

TABLE 4 QUANTITATIVE LIMITS FOR THE ADDITION OF CERTAIN NUTRIENTS TO FOODS

Nutrient	Minimum in a R.D.I.	Maximum in a R.D.I.	Minimum in a R.D.I. if food is intended for children under 2
Vitamin A	1600 IU	2500 IU	1000 IU
Vitamin D	300 IU	400 IU	300 IU
Vitamin E		15 IU	5 IU
Vitamin C	20 mg	60 mg	20 mg
Thiamin	0.6 mg	2 mg	0.4 mg
Riboflavin	1.0 mg	3 mg	0.6 mg
Niacin	6 mg	20 mg	4 mg
Pyridoxine		1.5 mg	0.6 mg
Calcium	300 mg	—	—
Phosphorus	300 mg	—	—
Iron	4 mg	—	—
Iodine	0.10 mg	—	—

TABLE 5 FOODS TO WHICH A VITAMIN, MINERAL NUTRIENT OR AMINO ACID MAY BE ADDED

Food	Vitamin, Mineral Nutrient or Amino Acid	Limits
*Table salt, table salt substitutes	Iodine.	0.01% Potassium Iodide
Vegetable drinks, bases and mixes for vegetable drinks, and a mixture of vegetable juices	Vitamin C.	As stated in Table 4.
Fruit nectars, apple juice, reconstituted apple juice, grape juice, reconstituted grape juice, pineapple juice, reconstituted pineapple juice, concentrated fruit juice, apple and any juice described in section B.11.132	Vitamin C.	As stated in Table 4.
*Fruit flavoured drinks and bases, concentrates and mixes that are used for making fruit flavoured drinks and that are sold as a substitute for fruit juice or as a breakfast drink.	Vitamin C, folic acid, thiamin, iron, potassium	100 mL of the ready-to-serve drink must contain Vitamin C 24–48 mg and may contain folic acid 40–80 μg thiamin 0.08–0.11 mg iron 0.56–0.80 mg potassium 100–200 mg
Dehydrated potatoes	Vitamin C.	As stated in Table 4.
*Simulated meat or poultry products and meat or poultry product extenders	Thiamin, riboflavin, niacin, pyridoxine, pantothenic acid, folic acid, vitamin B_{12}, iron, magnesium, potassium, zinc, copper, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, valine.	See page 14.
*Simulated whole egg	Vitamin A, thiamin, riboflavin, niacin, pantothenic acid, vitamin B_6, vitamin B_{12}, folic acid, alpha tocopherol, calcium, iron, zinc, potassium.	See page 13.
*Ready breakfast, instant breakfast and other similar breakfast replacement foods	Vitamin A, thiamin, riboflavin, niacin or niacinamide, vitamin C, iron.	As stated in Table 4.
**Margarine and other similar substitutes for butter	Vitamin A, vitamin D.	100 g of margarine must contain not less than Vitamin A 3300 IU Vitamin D 530 IU

*Mandatory enrichment.
**Addition of vitamin E is optional.

TABLE 5 FOODS TO WHICH A VITAMIN, MINERAL NUTRIENT OR AMINO ACID MAY BE ADDED (cont.)

Food	Vitamin, Mineral Nutrient or Amino Acid	Limits
*Milk, **condensed milk, milk powder, flavoured milk, sterilized milk	Vitamin D	852 mL (R.D.I.) of the ready-to-serve product must contain
*Skim milk, partly skimmed milk, skim milk powder: flavoured or not or with added milk solids	Vitamin A, vitamin D	vitamin D 300–400 IU
*Evaporated milk	Vitamin C, vitamin D	vitamin A (where required) 1200–2500 IU
*Evaporated or concentrated skim milk or partly skimmed milk	Vitamin A, vitamin C, vitamin D	vitamin C (where required) 60–75 mg
Flavoured beverage mixes and bases recommended for addition to milk	Vitamin A, thiamin, niacin or niacinamide, vitamin C, iron	As stated in Table 4.
*Prepared infant formulas and formulated liquid diets	Biotin, folic acid, niacin, d-pantothenic acid, riboflavin, thiamin, alpha-tocopherol, vitamin A, vitamin B_6 vitamin B_{12}, vitamin C, vitamin D, vitamin K_1, calcium, chloride, copper, iodine, iron, magnesium, manganese, phosphorus, potassium, sodium, zinc, amino acids.	See page 13 As described in section B.24.102
Infant cereal products	Thiamin, niacin or niacinamide, riboflavin, iron, calcium, phosphorus, iodine.	As stated in Table 4.
Breakfast cereals	Thiamin, niacin or niacinamide, riboflavin, iron.	As stated in Table 4.
Alimentary pastes (pasta)	Thiamin, niacin or niacinamide, riboflavin, iron.	As stated in Table 4.
*Flour or White Flour	Thiamin, niacin or niacinamide, riboflavin, iron, vitamin B_6, folic acid, pantothenic acid, magnesium, calcium	100 g of flour must contain thiamin 0.44–0.77 mg riboflavin 0.27–0.48 mg niacin 3.5– 6.4 mg iron 2.9– 4.3 mg and may contain vitamin B_6 0.25–0.31 mg folic acid 0.04–0.05 mg pantothenic acid 1.0– 1.3 mg magnesium 150– 190 mg calcium 110– 140 mg

*Mandatory enrichment.
**Addition of vitamin D is optional.

TABLE 5 FOODS TO WHICH A VITAMIN, MINERAL NUTRIENT OR AMINO ACID MAY BE ADDED (cont.)

Food	Vitamin, Mineral Nutrient or Amino Acid	Limits
*Enriched vitamin B white flour	Thiamin, niacin or niacinamide, riboflavin, iron	Same as for flour.
*Enriched bread	Nutrients come from the enriched flour that must be used in the making of enriched bread.	100 g of enriched bread must contain not less than: thiamin 0.24 mg riboflavin 0.18 mg niacin 2.20 mg iron 1.76 mg and may contain not less than: vitamin B_6 0.14 mg folic acid 0.024 mg pantothenic acid 0.60 mg magnesium 90 mg calcium 66 mg
*Meal replacements whether or not they are sold or represented for use in a weight reduction diet	Calcium, chloride, copper, iodine, iron, magnesium, manganese, phosphorus, potassium, sodium, zinc, alpha-tocopherol, biotin, pantothenic acid, folic acid, niacin or niacinamide, thiamin, vitamin A, Vitamin B_6, vitamin B_{12}, vitamin C, vitamin D, riboflavin	As described in section B.24.200
*Food for fat-modified diets meeting the requirements of sections B.24.015 d) i) and ii)	alpha-tocopherol	Not less than 0.6 IU per g linoleic acid

*Mandatory enrichment.

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CONTROL OF PATHOGENS AND MYCOTOXINS IN FOOD

The present mode of living and technology has increased our exposure to food-borne infection. As more people are eating outside the home, a greater number of food service employees will require proper training in the safe handling of foods. A contaminated creamed chicken served in a school cafeteria or a superjet will certainly claim several victims. On the other hand, the convenience foods, ready-to-eat items, and frozen prepared dinners requiring only minimum heating prior to serving are open avenues for mass infection. Our production and distribution system is such that the output of a food manufacturing plant may be rapidly distributed nationwide or even worldwide. This means that an infected employee, or a breakdown or deterioration of some phase of plant sanitation, can potentially infect thousands of consumers instead of a limited surrounding community.

However, food-borne illnesses associated with church luncheons, Sunday picnics and wedding receptions are by no means a threat of the past and are being reported constantly.

It is estimated than 5 to 10 million cases of acute digestive illness occur annually in the U.S.A. but less than 1% of these are even reported, let alone investigated sufficiently to determine the causative agents or their routes of transmission. In Canada, reported incidents of food-borne illness appear regularly in Canada Diseases Weekly Report.

The most commonly involved pathogens in food-borne illness are Staphylococci, Salmonella and Clostridium perfringens, while outbreaks due to Clostridium botulinum are less frequent.

Health protection branch control of pathogens in foods

Legislation

There are several provisions in the *Food and Drugs Act* that make it possible for the Health Protection Branch to exercise control over the spread of pathogenic microorganisms.

The broad terms of reference are set out in articles 4 and 7 of the Act* and, several of the regulations deal more specifically with this problem.

These regulations may set microbiological standards as summarized on page 15 or they may specify processing or storage conditions for products that present special problems, as illustrated here:

- Smoked fish, vacuum packed, must be treated at a temperature and for a time sufficient to destroy all spores of Clostridium botulinum
- Meat or poultry, barbecued, roasted or broiled, should be stored at a temperature of 4 °C or lower or 60 °C or higher (40 °F and 140 °F).

Inspection

It must be emphasized here that microbiological contamination represents the most important health hazard in foods, and thus a large proportion of the inspectors' time is devoted to its prevention.

*See page 4.

The purpose of Health Protection Branch surveillance is not only to isolate and identify pathogens in foods that present a health hazard to consumers, but also to detect those foods that have been produced under unsanitary conditions so that they either are potentially hazardous to health or unwholesome.

The food inspectors pursue a well delineated microbiological program on several fronts and oriented towards major problem areas:

- samples of imported foods and various food products at the retail level are taken and analysed—imported foods judged unsatisfactory are refused entry;
- at the manufacturers and warehouses, samples of raw materials from the production line, and finished products are taken and analysed;
- a microbiological plant inspection is carried out by an inspector and a microbiologist, whenever unusual or unexpected microbiological findings are evident in a food plant;
- consumer complaints are carefully investigated.

Education

Workshops have been held with manufacturers in various regions to promote better hygienic practices in food processing plants. Our inspectors also provide advice to the manufacturer for improvement of sanitary conditions when needed.

The Canadian Restaurant Association has developed and published a Sanitary Code for the food service industry and the Health Protection Branch cooperated in this project. To support this effort, Educational Services from Health Protection Branch has prepared material designed to be used in training the food service worker in the safe handling of foods.

On the home front it is also essential to pursue a consumer education program on sanitation and proper food handling emphasizing the following points:

- foods should be kept hot or cold and should not be held at temperatures between 4°C and 60°C (40°F and 140°F) for a prolonged period of time.
- foods that have an off-odour should be discarded and not tasted.
- frozen foods thawed and held at room temperature for more than two hours should not be refrozen.
- home canning of meat, fish and non-acid vegetables is discouraged.
- incidences of food-borne illness should be promptly reported to local health agencies.

Control of mycotoxins

Mycotoxin is a generic term used to describe the toxic substances formed during the growth of moulds. Poisoning by mycotoxins is called mycotoxicosis and it is frequently mediated through particular organs notably the liver, kidneys and brain.

Under suitable conditions, foods provide a favourable medium for mould growth and once the mycotoxins have been formed they remain even though the mould is subsequently killed. The major known food contaminant mould of this kind is Aspergillus flavus and the most important of the toxins it produces are the aflatoxins. Aflatoxins are potent poisons and imported ground nut meal contaminated with them caused extensive poultry and livestock losses in Britain in 1960.

Inspectors of the Health Protection Branch check finished nuts and nut products such as peanut butter offered for sale for the presence of aflatoxin. A level of acceptance is established and this is continually being lowered in consideration of such aspects as toxicology, improvements in analytical methodology and the state of industrial technology to cope with the problem. Other foods that are analysed for the presence of mycotoxins are: flour, baby foods, cereals, confections, coffee, cocoa, fruit juices, spices and other foods containing food ingredients susceptible to mould contamination.

TABLE 6 SELECTED CAUSES OF MICROBIAL FOOD POISONING

Disease & Food Poisoning Agent	Frequency & Toxicity	Symptoms	Onset & Duration of Symptoms	Habitat & Foods Commonly Involved	Preventive measures
TOXINOGENIC					
Staphylococcal food poisoning (*Staphylococcus aureus*) heat stable toxin	Most common; death is rare	Cramps, nausea, vomiting, diarrhea	Onset 1-6 hrs. after eating; last 1 day	Found in nose & throat of most people; foods—baked ham, roast fowl, meat or potato salads, fish, cream desserts	Temperature control; sanitary food handling practices
Botulism (*Clostridium botulinum*) anaerobic bacteria; heat labile toxin	Rarest; death frequent, mortality rate at least 50%	Double vision, infection of nervous system, then paralysis	Onset 1 day to 1 week after eating, paralysis and/or death; recovery slow.	Found in most soils; foods—underprocessed home-canned or commercial vegetables, fish & meats	Temperature control through adequate cooking & refrigeration
INFECTIOUS					
Perfringens food poisoning (*Clostridium perfringens*)	Very common; death is rare	Diarrhea, cramps	Onset 8-24 hrs. after eating; last 8 hrs.	Found everywhere, espec. in gut of animals; foods—meats, gravies	Temperature control through adequate cooking & immediate refrigeration or holding at above 60° C (140° F)
Salmonellosis (*Salmonella*)	Very common; occasional death for aged, infants, infirm	Cramps, chills, vomiting, diarrhea, fever	Onset 8-24 hrs. after eating; usually last 2-3 days, but may last for weeks	Found in gut of domestic animals, espec. chickens; foods—poultry, eggs & egg products	Temperature control; sanitary food handling practices
Shigella poisoning (*Shigella*)	Uncommon; death unknown	Cramps, diarrhea	Onset 7-66 hrs. after eating; last ½ day to 1 week	Found in sewage contaminated water; foods—milk, ice cream	Sanitation
E. coli poisoning (*Escherichia coli*)	Uncommon; death unknown	Cramps, diarrhea, vomiting	Onset 6-36 hrs. after eating; last ½ day to 1 week	Found in sewage contaminated water; foods—shellfish	Sanitation

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Microbial Food Poisoning—Dispatch No. 32
Danger Zone in the Kitchen—booklet
Food Safety: It's All In Your Hands—booklet
The Danger Zone—poster

FOOD ADDITIVES

The present regulations on food additives date back to 1964 when the positive lists of permitted additives as we know them were established after a careful review of all data available on the acceptability of each compound. Prior to that date positive lists existed for certain compounds such as food colours and preservatives, but they were not as extensive.

It is also important to point out that provision has always existed under the *Food and Drugs Act* to prohibit the use of any substance considered unsuitable for use in foods. This provision is still in effect today.

What is a food additive?

According to the regulations a "food additive" means "any substance, including any source of radiation, the use of which results, or may reasonably be expected to result in it or its by-products becoming a part of or affecting the characteristics of a food".

By this definition a food additive does not include:

- any nutritive material that is used, recognized or commonly sold as an article or ingredient of food;
- vitamins, mineral nutrients and amino acids;
- spices, seasonings, flavouring preparations, essential oils, oleoresins and natural extractives;
- agricultural chemical residues;
- food packaging materials and components thereof; and
- drugs recommended for administration to animals that may be consumed as food.

These substances are not included in the definition because of the existence of other regulations which govern their use.

Regulations regarding food additives

The list of permitted food additives is set out in table form in fifteen categories and each table lists the following;

- purpose of food additives
- names of additives that can be used for that purpose
- foods in which they are permitted
- the amount permitted

The following are examples of various food additives in each of the fifteen categories covered by these tables.

Anticaking agents

Calcium silicate permitted in salt at the level of 1.0%. Magnesium stearate permitted in unstandardized dry mixes at G.M.P. (Good Manufacturing Practice) level.

Bleaching, maturing and dough conditioning agents

Calcium peroxide is permitted in bread at the level of 100 parts per million (p.p.m.) of flour. Potassium iodate permitted in unstandardized bakery foods at 45 p.p.m. of flour.

Colouring agent

B-apo-8′-carotenal permitted in sherbet at the level of 35 p.p.m. Tartrazine permitted in unstandardized foods at the level of 300 p.p.m. singly or in any combination with Amaranth, Erythrosine, Indigotine or Sunset Yellow FCF.

Emulsifying – gelling – stabilizing and thickening agents

Agar-agar permitted in ice cream at 0.5% level. Lecithin permitted in sherbet at the 0.75% level. Sodium phosphate dibasic permitted in cottage cheese at the 0.5% level.

Food enzymes

Invertase permitted in confectionery at G.M.P. level.

Firming agents

Potassium aluminum sulphate permitted in pickles and relishes at G.M.P. level.

Glazing and polishing agent

Beeswax permitted in confectionery at 0.4% level.

Miscellaneous

Oxystearin to inhibit crystal formation permitted in cotton seed oil, peanut oil and soy bean oil at the level of 0.125%. Magnesium silicate, dusting agent permitted in chewing gum at G.M.P. level.

pH adjusting agents – acid reacting materials and water correcting agents

Citric acid permitted in unstandardized foods at G.M.P. level. Lactic acid permitted in cottage cheese at G.M.P. level.

Preservatives

Ascorbic acid permitted in preserved meat and poultry at G.M.P. level. Benzoic acid permitted in jam at the level of 1000 p.p.m.

Sequestering agents

Disodium EDTA permitted in dressing and sauces at the level of 75 p.p.m.

Starch modifying agents

Sodium hydroxide permitted in starch at G.M.P. level.

Food additives used as yeast foods

Ammonium chloride permitted in bread at the level of 2500 p.p.m. of the flour.

Carrier or extraction solvents

Hexane permitted as an extraction solvent for vegetable fats and oils with a residue level of 10 p.p.m.

The regulations also stipulate that food additives used in a product must be declared on the label* of all foods. Provision is also made for the addition or deletion of compounds from the permitted list.

In the examples of food additives it may be noted that in some instances finite limits of use have not been specified; instead, the term G.M.P. is used. This does not imply that the materials can be used in any amount. In fact when the tables state that such compounds may be used in accordance with "Good Manufacturing Practice" (G.M.P.), such limits are governed by Regulation B.01.044 as "The amount . . . shall not exceed the amount required to accomplish the purpose for which that additive is permitted to be added to that food".

Criteria for purity

It is also important that criteria for purity be defined for food additives to ensure that the quality of these chemicals is such that they can be used in foods. The Food Chemical Codex prepared by the Committee of Food Protection, National Research Council and the National Academy of Science, U.S.A., answers this need and describes specifications for food grade chemicals. Representatives of the Health Protection Branch serve on committees that draft these specifications,

*See page 6 for regulations on labelling.

and Regulation B.01.045 in the *Food and Drug Regulations* requires that additives used in Canada meet the specifications of the Food Chemical Codex.

Procedure for accepting a new food additive

A manufacturer who wishes to use a new additive must present a submission to the Health Protection Branch according to the requirements laid out in the regulations.

B.16.002. "A request that a food additive be added to or a change made in the Tables following section B.16.100 shall be accompanied by a submission to the Minister in a form, manner and content satisfactory to him and shall include

(a) a description of the food additive, including its chemical name and the name under which it is proposed to be sold, its method of manufacture, its chemical and physical properties, its composition and its specifications and, where that information is not available, a detailed explanation;

(b) a statement of the amount of the food additive proposed for use, and the purpose for which it is proposed, together with all directions, recommendations and suggestions for use;

(c) where necessary, in the opinion of the Director, an acceptable method of analysis suitable for regulatory purposes that will determine the amount of the food additive and of any substance resulting from the use of the food additive in the finished food;

(d) data establishing that the food additive will have the intended physical or other technical effect;

(e) detailed reports of tests made to establish the safety of the food additive under the conditions of use recommended;

(f) data to indicate the residues that may remain in or upon the finished food when the food additive is used in accordance with good manufacturing practice;

(g) a proposed maximum limit for residues of the food additive in or upon the finished food;

(h) specimens of the labelling proposed for the food additive; and

(i) a sample of the food additive in the form in which it is proposed to be used in foods, a sample of the active ingredient, and, on request a sample of food containing the food additive."

B.16.003 "The Minister shall, within ninety days after the filing of a submission in accordance with section B.16.002, notify the person filing the submission whether or not is is his intention to recommend to the Governor-in-Council that the said food additive be so listed and the detail of any listing to be recommended."

Policy on the use of food additives

The following criteria form the basis of the Canadian policy in evaluating additives and follow the general trend of the FAO/WHO position.

1. the food additive must be safe for continued use;
2. its use must not lead to deception; and
3. its use must result in an advantage to the consumer by improving or maintaining the nutritive value, quantity, quality or acceptability of the food.

The submissions are evaluated by scientists from the Food Directorate including toxicologists and food technologists. One of their major functions is to evaluate the safety of the proposed additive. To assist manufacturers, the Directorate has prepared a "Guide for Preparation of Submissions on Food Additives". This guide suggests the studies and data that are required before an additive is accepted. These include biochemical and physiological tests, subacute and chronic toxicity studies and reproduction studies which must be conducted in at least two species of animals.

From these investigations, a dosage that causes no demonstrable effect in the animals may be ascertained. Then the Acceptable Daily Intake for man is calculated by dividing the "no-effect-level" in animals by a safety factor of usually 100. Thus if a substance has a no-effect-level in animals of 500 mg/kg of body weight, its Acceptable Daily Intake for man would be 5 mg/kg of body weight. Once the A.D.I. is established the probable intake of this additive by the Canadian population must be evaluated and then a rational decision can be taken regarding the safety of a given additive for a proposed use.

It may be noted that questions of toxicity are an international concern, and the FAO/WHO Joint Expert Committees meet regularly to evaluate the toxicity of food additives. The recommendations of these expert committees are always taken into account in reviewing submissions presented by manufacturers.

Even if a food additive is considered safe, its use will not be permitted if it may lead to deception, if it does not bring an advantage to the consumer or if it is not clearly established that it performs the function it is intended for.

Food colours

As one category of food additives, food colours are submitted to the controls outlined above so their use does not constitute a danger to health and become a means to disguise a poor quality food.

The list of food colours permitted in Canada is more restrictive than in most countries. Besides natural colours, nine synthetic colours are permitted in foods in Canada. The regulations provide for a fairly widespread use of seven of these, while two others, Citrus Red No. 2 and Ponceau SX, are restricted respectively to the skins of whole oranges and to fruit peel, glacé fruits and maraschino cherries.

The seven other synthetic colours presently used are: Amaranth, Brilliant Blue FCF, Erythrosine, Fast Green FCF, Indigotine, Sunset Yellow FCF and Tartrazine.

Over the years, the Health Protection Branch has undertaken several studies to evaluate the toxicity of food colours, following which some compounds have been delisted while certain restrictions have been applied to others.

Currently, the Health Protection Branch has undertaken a full review of food colours in an attempt to delineate more specifically the use of these compounds in various foods and to eliminate, where feasible, the "Good Manufacturing Practice" approach.

Consumers should also be careful in using food colours. As a protective measure, the *Food and Drug Regulations* specify that liquid preparations for use in or upon food shall be sold in containers having a 2 ounce capacity or less, which will only permit discharge of one drop at a time.

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The Additive Alarm—fact sheet
Guide to Food Additives—booklet
Food Additive Pocket Dictionary

PESTICIDES

Pesticides rank high in the list of technical innovations responsible for the increased productivity in agriculture. Their use parallels an equal improvement in the quality of agricultural products on the Canadian market.

Despite the claims of various alarmists, this progress has not been achieved at the expense of the health and safety of the Canadian consumer. The Health Protection Branch works in close cooperation with the Canada Department of Agriculture and other agencies advising on the safe use of pesticides and monitoring the final food products which may be offered to the consumer.

Before a product can be sold by a manufacturer for use on a food crop or for use in an area where food may be handled or processed, the product must be registered by the Canada Department of Agriculture. This involves a review of the product by the Health Protection Branch and, if necessary in the interest of the consumer, the conditions of use may be modified or a residue tolerance established. Such a residue tolerance may be considered as a safe level. The establishment of pesticide residue tolerances in or on food intended for human consumption was started in 1956, and today tolerances are listed for approximately 100 pesticides.

Procedure to determine tolerance level

The manufacturer's request

A tolerance for a given agricultural chemical is established at the request of the manufacturer.

The following information should accompany a request:

- Justification for the use of the product
- Evidence that the product is effective and practical for the purpose recommended
- The physical-chemical properties of the product
- The amounts to be applied and the frequency and time of application
- Full reports of investigations made to determine the safe levels of the residues
- The results of tests on the amount and nature of the residues remaining in or on the food crop and the description of a satisfactory analytical method for determining residues in or on the foods or classes of foods for which it was recommended
- A proposed tolerance

Review of data on toxicity studies Estimated A.D.I. in mg/kg

The Acceptable Daily Intake for man is usually determined on the basis of the data obtained in toxicity studies in mammals. The starting point chosen is the maximum dose level that causes no deleterious effect in the most sensitive species.

This dose in mammals, expressed in mg/kg of body weight, is divided by a large safety factor, usually 100. The value thus obtained

is considered to be the "Acceptable Daily Intake", i.e. the maximum daily dose of the chemical which appears to be without appreciable risk when taken by man throughout his entire lifetime.

Tolerance levels in foods

It is the policy of the Health Protection Branch to establish tolerances at levels which are necessary to cover residues remaining on the crop at harvest, providing these are consistent with good agricultural practices and are considered to be safe. A calculation of the maximum Theoretical Daily Intake is made based on the tolerance levels proposed and the average per capita consumption of the foodstuffs concerned. Providing this Theoretical Daily Intake does not exceed the Acceptable Daily Intake estimated from toxicity studies, the tolerances are accepted and should allow a person to consume foods containing the pesticide at levels up to the tolerance levels for an entire lifetime without suffering any ill effects.

Health protection branch control

Routine examination of samples is conducted in regional laboratories in Halifax, Montreal, Toronto, Winnipeg and Vancouver by analysts who are specialists in pesticide determination.

Products found to contain excessive residues are:

- prevented from ever reaching the market
- removed from the market or diverted to processing if processing will remove the residue
- or, in the case of imported foods, they are refused entry.

Research

- development of new analytical methods of pesticide residues in order to improve the means of control
- evaluation of pesticide residues in an average meal as consumed by Canadian families
- toxicological studies on pesticides.

Foods for which no pesticide tolerances have been established

There are some major groups of foods for which no tolerances have been established, as for example, milk, eggs, fish, and certain meat products. Pesticides are not applied directly to such foods and the amounts which might inadvertently find their way into them should be kept to a minimum.

A very minute quantity of a pesticide in these foods is not necessarily considered harmful. As a practical policy, no action is taken if the amount of the pesticide will not present a danger to health.

Conclusion

Pesticide tolerance levels and the use of pesticides are constantly being reviewed and revised in the light of new data regarding toxicity and taking into account new methods of analysis for detection of residues. The Federal Interdepartmental Committee on Pesticides, with representatives from the following departments: Agriculture, Energy, Mines and Resources, Environment, Indian Affairs and Northern Development, National Defence, National Health and Welfare, and National Research Council, meets on a regular basis to deal generally with the use and effects of pesticides.

Data from the total diet studies (evaluation of residues in an average meal) indicate clearly that the amount of pesticide residues consumed by Canadians is far below the Accepted Daily Intake for all pesticides.

The policy of having two categories of foods, those for which a tolerance has been established and those with no tolerance, provides adequate protection to the public and at the same time permits the necessary use of pesticides in agriculture production.

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Material available from the Canadian Agricultural Chemicals Association, suite 710, 116 Albert Street, Ottawa, Ontario:
Pesticide Safety Handbook—free booklet

Material available from Educational Services:
Control of Pesticide Residues in Food—Dispatch No. 51

FOODS FOR SPECIAL DIETARY USE

Regulations on foods for special dietary use have recently undergone a major revision, and a completely new division dealing with these products has been added to the *Food and Drug Regulations.*

New comprehensive labelling requirements should provide the consumer, the dietitian or the physician with the necessary information to make sound decisions on the use of these products. Compositional requirements have also been established to ensure that, when used properly, these foods should benefit the consumer by increasing significantly the quantity or the variety of foods permitted in his diet.

What are foods for special dietary use?

"Food for special dietary use" means food that has been specially processed or formulated to meet the particular requirements of a person (a) in whom a physical or physiological condition exists as a result of a disease, disorder or injury, or (b) for whom a particular effect, including but not limited to weight loss, is to be obtained by a controlled intake of foods.

There are a limited number of dietary treatments where the use of special foods may be necessary or advantageous. Accordingly, to avoid the proliferation of products recommended for all sorts of ailments, the new regulations specify clearly what types of products may be marketed as "dietetic". There are two permitted groups of products:

1) Products for which there are no present compositional or labelling requirements but which can be recommended for the following diets:

   Gluten-free diets
   Protein restricted diets
   Low (naming the amino acid) diet

2) Products that must meet the compositional and labelling requirements set for one of the following foods:

   Carbohydrate-reduced
   Sugar-free
   Calorie-reduced
   Low Calorie
   Low Sodium
   Fat-modified
   Low Fat
   Formulated Liquid Diet

   Meal Replacements for use in weight reduction diets
   Prepackaged meals for use in weight reduction diets

Labelling

Besides general labelling requirements,* the label of special dietary foods shall indicate:

a) The dietetic description in close proximity to the common name and in the same type size, e.g.:
   Carbohydrate-reduced Cookies

*See page 6 for labelling regulations.

Sugar-free Gum
Calorie-reduced Spread
Low Calorie Dressing
Low Sodium Peanut Butter

b) The type of diet the product is recommended for:

Product	Recommended For
Carbohydrate-reduced Sugar-free	Carbohydrate-reduced Diet
Calorie-reduced Low Calorie	Calorie-reduced Diet
Low Sodium	Sodium-restricted Diet

c) The nutritional value of the product:

Product	Nutritional Value
Carbohydrate-reduced Sugar-free Calorie-reduced Low Calorie	1) Carbohydrate, protein, fat, mannitol and sorbitol g/100 g or 100 mL *and* g/unit of ready to serve food 2) Calories/100 g or 100 mL *and* calories/unit of ready-to-serve food
Low Sodium	1) Sodium, potassium mg/100 g or 100 mL *and* mg/unit of ready to serve food 2) Carbohydrate, protein, fat g/100 g or 100 mL *and* g/unit of ready to serve food 3) Calories/100 g or 100 mL *and* calories/unit of ready-to-serve food
Meal replacement for use in weight reduction Formulated liquid diets	1) Fat, protein, available carbohydrate, linoleic acid and in the case of formulated liquid diets, crude fibre (where present) in g/100 g or 100 mL *and* in g/unit of ready-to-serve food 2) Calories per 100 g or 100 mL *and* calories/unit of ready-to-serve food 3) Vitamins and minerals (see pages 22 and 23) per 100 g or mL *and* per unit of ready-to-serve food
Prepackaged meals for use in weight reduction diets	1) Fat, protein, available carbohydrate in g/100 g or mL *and* g/unit of ready-to-serve food 2) Calories per 100 g or mL *and* calories/unit of ready-to-serve food

d) Mannitol and sorbitol:

Because of their slow absorption rate, mannitol and sorbitol are not considered available carbohydrates, and although their presence is indicated on the label, they are not accounted for in the quantitative carbohydrate declaration. However, their caloric value is included in the total energy value of the product and is calculated as 2 Calories per gram of mannitol and 4 Calories per gram of sorbitol.

e) Other mandatory information:

Meal replacements and prepackaged meals recommended for use in a weight reduction diet must carry the statement that adherence to the directions for use may reduce energy intake which is necessary for weight loss. Except for meal replacements represented as the sole source of nutrition, meal replacements and prepackaged meals recommended for use in weight reduction must include in the directions for use a sample seven-day menu meeting requirements set out in Section B.24.204.

Composition of special dietary foods

Dietetic foods are defined in terms of the products for which these foods may be a substitute.

Carbohydrate-reduced food:

- may contain not more than 50% of the available carbohydrate found in the food for which it is a substitute
- may not contain more calories than the food it replaces
- may be made providing the original product was a significant source of carbohydrate and derived at least 25% of its calories from carbohydrate

Sugar-free food:

- is a carbohydrate-reduced food
- may contain not more than 0.25% of available carbohydrate
- may provide not more than one Calorie per 100 g or 100 mL except for chewing gum

Calorie-reduced food:

- shall contain not more than 50% of the calories found in the food it replaces

Low calorie food:

- shall provide not more than 50% of the calories present in the food for which it is a substitute
- shall supply not more than
  15 Calories per average serving
  and
  30 Calories in an R.D.I.

Low sodium food:

- shall contain not more than 50% of the sodium present in the food for which it is a substitute
- shall supply not more than 40 mg sodium /100 grams except for meat, fish, and poultry which may contain not more than 80 mg sodium /100 grams and cheddar cheese which may contain not more than 50 mg sodium /100 grams
- may not contain added sodium salt

Food for fat-modified diet:

- shall be simulated meat products, simulated poultry products or yolk-replaced eggs meeting the requirements set out in the *Regulations*
- shall not contain more than 3 mg cholesterol per 100 grams of food
- if labelled *low fat* shall contain not more than 15 Calories from fat in a serving or 30 Calories from fat in a RDI
- if labelled *fat-modified* shall contain not less than 40% of total fat as linoleic acid and not less than 0.6 IU of alpha-tocopherol per gram of linoleic acid; the total saturated and *trans* fatty acid content shall not exceed the linoleic acid content

Formulated liquid diets

- B.24.102 describes the compositional requirements

Meal replacements and Prepackaged Meals for weight reduction diets

- B.24.200 describes the compositional requirements

Permissible labelling

Comparison

Direct comparisons may be made pertaining to the calorie, carbohydrate or sodium content of a dietetic food, as outlined:

- with the food for which it is a substitute.

Acceptable

Calorie-reduced Oatmeal Cookies
"Half the calories of oatmeal cookies"

Non-acceptable

Calorie-reduced Oatmeal Cookies
"Half the calories of chocolate cake"

- only specific comparisons are acceptable.

Acceptable

Calorie-reduced Golden Spread
"Half the calories of butter"

Non-acceptable

Calorie-reduced Golden Spread
"Fewer calories than butter"

- comparisons must always be valid, informative, and based on equal weights of the compared foods. Comparisons of slices or bowlfuls of any volume of food are considered misleading unless an equal volume has the same weight.

Non-cariogenic

Foods which meet the criteria for "sugar-free" may be described as "non-cariogenic" or by a synonymous term.

"Made without salt" or "No salt added" label statements

- These are acceptable claims if true and the product normally contains salt. Here again this claim would be considered misleading if the statement was made on the label or advertisement of a food containing as much sodium as the food for which it is a substitute despite the fact that no extra salt was added. Such a food could still contain a fair amount of sodium.

Dietetic version of a standardized food

- When a food for a special dietary purpose is a substitute for a food (ketchup) for which a standard exists in the *Food and Drug Regulations*, it may not be referred to as "Diet or Dietetic (Ketchup)", unless the special product meets that particular standard in all respects. Another acceptable name must be found for the food which does not suggest that the product meets the standard, e.g. "tomato condiment", and in addition, phrases such as "use as (ketchup)" or "use in place of (ketchup)" may be used.

Liquid Protein Preparations

Foods represented as containing hydrolyzed or partially hydrolyzed collagen, gelatin or casein must carry the statement "Caution-do not use as the sole source of nutrition".

This regulation applies to products which were bought and used by certain persons as a method of weight reduction, although no claims for weight reduction are permitted. The regulation does not apply to formulated liquid diets or infant formulas.

Regulations pertaining to the use of synthetic sweeteners

Sugar substitutes containing cyclamates or saccharin are sold as table-top sweeteners. These two artificial sweeteners are not permitted in manufactured foods in Canada.

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Additives and their Toxicological Evaluation,
Some Flavouring Substances and Non-nutritive Sweetening Agents

EDUCATIONAL SERVICES

The function of Educational Services is to inform Canadians about the activities of the Health Protection Branch and, more specifically, to make consumers aware of the health safeguards provided by the *Food and Drugs Act and Regulations*.

Educational Services prepares educational materials and maintains direct contact with educators and consumers through the assistance of trained consultants attached to Health Protection Branch offices in Halifax, Saint John, Montreal, Toronto, Winnipeg, Edmonton and Vancouver. These consultants work with media but mainly with groups, teachers, community workers, consumer associations, provincial government departments and professional societies. Each one activates projects to suit the requirements of her area.

Consultants may give assistance to educators in several ways:

- help in planning conferences and seminars on food and drug protection measures;
- provision of informative material—booklets, bulletins, teaching aids;
- talks using visual aids;
- participation in community health and consumer education programs, and school workshops;
- provision of background material for speeches;
- advice or information regarding changes in regulations and latest Health Protection Branch publications.

The central and coordinating office of Educational Services is in Ottawa. The broad goals are established there and materials such as booklets, fact sheets, and bulletins are prepared and distributed.

A Resource List which describes Educational Services materials may be ordered from any of the addresses at the end of this chapter.

Educational Services also welcomes comments from educators about the type of informative materials they require for projects on health topics under the jurisdiction of the Health Protection Branch.

The Educational Services consultants may be contacted at any of the addresses on the following page.

EDUCATIONAL SERVICES

Head Office:

Health Protection Branch
Educational Services
Ottawa, Ontario
K1A 1B7

Regional Offices:

Health Protection Branch
5th Floor, Ralston Bldg.
1557 Hollis Street
Halifax, Nova Scotia
B3J 2R7

Health Protection Branch
Box 6396, Station "A"
Saint John, New Brunswick
E2L 4L9

Health Protection Branch
1001 Saint-Laurent Blvd.
Longueuil, Quebec
J4K 1C7

Health Protection Branch
2301 Midland Avenue
Scarborough, Ontario
M1P 4R7

Health Protection Branch
Federal Bldg.
310-269 Main Street
Winnipeg, Manitoba
R3C 1B2

Health Protection Branch
Room 30, Commonwealth Bldg.
9912 - 106 Street
Edmonton, Alberta
T5K 1C5

Health Protection Branch
6th Floor, Customs Bldg.
1001 West Pender Street
Vancouver, British Columbia
V6E 2M7

APPENDIX

SCHEDULE A TO THE FOOD AND DRUGS ACT

- Alcoholism
- Alopecia
- Anxiety state
- Appendicitis
- Arteriosclerosis
- Arthritis
- Bladder disease
- Cancer
- Convulsions
- Depression
- Diabetes
- Disease of the prostate
- Disorder of menstrual flow
- Dysentery
- Edematous state
- Epilepsy
- Gall bladder disease
- Gangrene
- Glaucoma
- Gout
- Heart disease
- Hernia
- Hypertension
- Hypotension
- Impetigo
- Influenza
- Kidney disease
- Leukemia
- Liver disease
- Nausea and vomiting of pregnancy
- Obesity
- Pleurisy
- Pneumonia
- Poliomyelitis
- Rheumatic fever
- Scabies
- Septicemia
- Sexual impotence
- Tetanus
- Thyroid disease
- Tuberculosis
- Tumour
- Ulcer of the gastro-intestinal tract
- Vaginitis
- Venereal disease

Notes


Canada